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Scheduled 14 CFR Part 121: Air Carrier operation of ATLANTIC COAST AIRLINES

Incident occurred Friday, February 14, 2003 in Bloomington, IL

Probable Cause Approval Date: 3/30/2005

Aircraft: Canadair CRJ-600, registration: N653BR

Injuries: 29 Uninjured.

The regional jet, operating as a 14 CFR Part 121 domestic passenger flight, sustained minor damage when the nose landing gear collapsed during landing rollout on runway 20. While en route to their destination, the flight crew obtained the airport Automated Terminal Information Service (ATIS) information. The ATIS information indicated the current winds were 060 degrees at 14 knots. Neither the captain nor the first officer checked the reported winds against the Wind Component Conversion Chart to determine whether the headwind/tailwind and crosswind components were within limits. The Wind Component Conversion Chart indicated that the tailwind component was 10.5 knots and the crosswind component was 9 knots. The airplane's tailwind limitation is 10 knots. The Flight Data Recorder (FDR) data indicated that the airplane landed with a 13 knot tailwind. Prior to the ILS instrument approach, the captain conducted an Approach Brief, but did not brief the missed approach procedures. The tower air traffic controller informed the pilot that snowplows had removed snow from the centerline of the runway and that the braking action was "fair to poor." The captain did not brief the first officer concerning procedures for landing on a contaminated runway. The FDR data indicated that the airplane touched down near the runway intersection, approximately 2,900 +/- 250 feet (2,650 feet to 3,150 feet) from the approach end of Runway 20. Runway 20 is 7,000 feet long. The desired touchdown point is 1,000 feet from the approach end of the runway, or the first 1/3 of the runway. Runway 20's touchdown zone limit is 2,333 feet from the approach end of the runway. The FDR data indicated that the aircraft touched down on a heading of 190 degrees at 124 knots computed airspeed with 0.4 degrees of nose up pitch. The data indicated the nose was pitching nose down at the time of touchdown. All three landing gear Weight-on-Wheels (WOW) switches changed from Air to Ground within 0.25 seconds of each other.

Approximately 1.75 seconds later the nose landing gear WOW switched to Air again, indicating that the nose landing gear had collapsed. The vertical acceleration parameter did not show a significant load at touchdown. The airplane skidded to a stop on the runway. The captain reported that he inspected the runway and observed ridges of snow and ice near the runway intersection. The on-site inspection of the airplane revealed that the nose landing gear drag brace had broken and the nose landing gear collapsed rearward. The nose wheel and tire remained intact and were jammed under the airplane as it skidded to a stop. Metallurgical examination revealed that the drag brace failed due to the application of an overload and that there were no material defects. The Messier-Dowty analysis of the nose landing gear fracture indicated that the load required to fracture the drag brace was generated by hitting an obstacle. An investigation of airport operations revealed that the personnel inside the snow removal vehicles were making runway condition assessments by looking out their side view mirrors. The airport did not conduct or provide friction measurement reports and NOTAMS between the hours of 1900 and 2200 when airport conditions were rapidly changing with significant snowfall accumulations and snow removal equipment was actively operating on runway 20.

The National Transportation Safety Board determines the probable cause(s) of this incident as follows:

The pilot's improper in-flight decision to land on a runway with a tailwind component that exceeded the airplane's tailwind limitation and his failure to perform a go-around which resulted in the proper touchdown point not being attained and the airplane landing long. Also causal was the inadequate snow removal procedures used by the airport personnel and the airport personnel failed to issue NOTAMS in accordance with existing regulations, resulting in the landing gear to fail in overload as a result of hitting a ridge of snow and/or ice on the runway during landing roll. Additional factors included the contaminated runway; the tailwind; the snow; and the dark night.

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